UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,307	06/27/2007	Edouard Francois	PF040033	7089

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EXAMINER
FINDLEY, CHRISTOPHER G

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/590,307	FRANCOIS ET AL.
	Examiner	Art Unit	
	CHRISTOPHER FINDLEY	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *8/23/2006*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20100930

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   **Claims 9, 10, and 12 are rejected under 35 U.S.C. 102(e) as being**

anticipated by Turaga et al. (US 20040008785 A1, hereinafter referred to as

"Turaga").

        Re **claim 9**, Turaga discloses a decoding method of sequence of a coded

images, the coding realizing an intermediate step of hierarchical temporal analysis of

the MCTF type providing high frequency and tow frequency pictures for their coding,

comprising a decoding step giving high frequency and tow frequency decoded pictures,

at least one reverse calibration step for pictures selected from the high and low

frequency decoded pictures, the selection of the pictures and the number of reverse

steps being dependent on an element of information associated with the coded picture,

to provide pictures to synthesize, and a temporal synthesis step from decoded pictures

not selected and said pictures to synthesize (Turaga: Fig. 5 and paragraphs [0037]-

[0043]).

Re **claim 10**, Turaga discloses that the information associated is the value of a counter assigned to the picture during the coding (Turaga: paragraph [0037]).

Re **claim 12**, Turaga discloses a decoding circuit to provide high and low frequency decoded pictures and a temporal synthesis circuit of pictures to synthesize, also comprising means to perform a reverse calibration of selected high and/or low frequency decoded pictures to provide pictures to be synthesized, the selection of the pictures and the number of reverse calibrations being dependent on an element of information associated with the picture to decode, and received by the decoder (Turaga: paragraph [0024], the scaling factor is the inverse of the square root of 2).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turaga et al. (US 20040008785 A1, hereinafter referred to as "Turaga") in view of Zhang et al. (US 7321625 B2, hereinafter referred to as "Zhang").**

Re **claim 1**, Turaga discloses a method for coding a picture sequence comprising a hierarchical temporal analysis of a group of pictures performing a motion compensated temporal filtering of successive pairs of pictures to supply low temporal

frequency pictures and high temporal frequency pictures at different temporal

decomposition levels, this analysis realizing, for a given temporal decomposition level

and for a pair of low temporal frequency pictures, a motion estimation step of a current

picture B to a previous reference picture A to supply motion vectors then a motion

compensated temporal filtering of these pictures to supply a low temporal frequency

picture (L) and a high temporal frequency picture (H) at a greater decomposition level,

the said temporal filtering being replaced by an intra mode coding to obtain at least one

low (L) or high (H) frequency picture if the current picture has a level of correlation with

a previous picture lower than a threshold the low frequency pictures (L) obtained being

thus scaled to be adapted, at the energy level, to the pictures obtained by the said

motion compensated temporal filtering (Turaga: paragraph [0023], matched L and H-

frames are produced), also comprising, a calibration step to calibrate the selected

pictures by carrying out at least one reverse step of the scaling step, for their coding

(Turaga: paragraph [0024], the scaling factor is the inverse of the square root of 2).

Turaga does not specifically disclose among the low frequency picture and the

final high frequency decomposed pictures obtained at the end of the analysis: a

selection step to select the low (L) or high (H) frequency pictures obtained by intra

coding of a picture at a lower decomposition level with the additional condition, for the

high frequency pictures, that this picture is derived itself from an intra coding. However,

Zhang discloses that redundancy in intra coded pictures is exploited in wavelet coding

(Zhang: column 6, lines 45-53). Since both Turaga and Zhang relate to wavelet coding,

one of ordinary skill in the art at the time of the invention would have found it obvious to

combine the intra picture exploitation of Zhang with the scheme of Turaga in order to

achieve improved coding efficiency (Zhang: column 6, lines 47-50).

Re **claim 2**, Turaga discloses that the number of reverse steps carried out

corresponds to the number of successive intra coding operations of a low frequency

picture (L) to arrive at the picture selected if this involves a low frequency selected

picture, this number being decreased by one if it involves the high frequency selected

picture (L) (Turaga: paragraph [0022], the motion estimation unit 6 will provide a motion

vector MV and a frame number for each region matched in the current frame being

processed).

Re **claim 3**, Turaga discloses for the calculation of a low L or high H frequency

image at a given temporal level, a temporal filtering between the current picture and a

following picture of the following pair of pictures of the lower temporal level, if the

correlation between the current picture and the previous picture is lower than a

threshold and if the correlation between the current picture and this following picture is

greater than a threshold the other H or L picture of the given temporal level being

obtained by intra coding, this filtering operation being assimilated with the intra coding

and not with the temporal filtering for the selection step (Turaga: paragraph [0028],

threshold used to determine matches).

Re **claim 4**, Turaga discloses assigning a picture number to each picture of the

group of pictures, and monitoring these numbered pictures during the decomposition by

attributing a counter for each number, this counter being updated at each step: the

counter is increased each time a low frequency picture (L) is obtained in intra mode, the

counter remains unchanged each time a high frequency picture (H) is obtained in intra

mode or during a temporal filtering with a following picture, the counter is reset each

time a picture is obtained by motion compensated temporal filtering with a previous

picture, the reverse steps being carried out according to the value of the counters

(Turaga: paragraph [0022], the motion estimation unit 6 will provide a motion vector MV

and a frame number for each region matched in the current frame being processed).

Re **claim 5**, Turaga does not disclose the equations recited. However, Zhang

discloses the same equations for H and L (Zhang: equations (9) and (10)). Since both

Turaga and Zhang relate to wavelet coding, one of ordinary skill in the art at the time of

the invention would have found it obvious to combine the wavelet decomposition of

Zhang with the scheme of Turaga in order to achieve improved coding efficiency

(Zhang: column 6, lines 47-50).

Re **claim 6**, Turaga does not disclose the equations recited. However, Zhang

discloses the same equations for H and L (Zhang: equations (9) and (10) when no

motion compensation takes place, as is the case with intra pictures). Since both Turaga

and Zhang relate to wavelet coding, one of ordinary skill in the art at the time of the

invention would have found it obvious to combine the wavelet decomposition of Zhang

with the scheme of Turaga in order to achieve improved coding efficiency (Zhang:

column 6, lines 47-50).

Re **claim 7**, Turaga discloses that the calibrated pictures obtained by temporal analysis are then processed by spatial analysis (Turaga: Fig. 5, spatial recomposition 20).

Re **claim 8**, Turaga discloses that the level of correlation is calculated by taking into account the number of connected pixels, that is, connected by a motion vector (Turaga: paragraph [0030]).

Re **claim 11**, Turaga discloses a temporal analysis circuit using the motion compensated temporal filtering and the intra coding, characterized in that the circuit selecting among the low frequency picture and the final high frequency decomposed pictures obtained at the end of analysis, the pictures obtained by an intra coding of a picture at the lower decomposition level, with the additional condition, for the high frequency pictures, that this picture is derived itself from an intra coding, and the circuit carrying out at least one scaling step for the pictures selected (Turaga: paragraph [0024], scaling is performed).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is (571)270-1199. The examiner can normally be reached on Monday-Friday (8:30 AM-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621

/Christopher Findley/